CLAIM AMENDMENTS

1. (previously amended)A cable modem system that is operable using synchronous code division multiple access for a plurality of cable modem channels, the cable modem system comprising:

a plurality of cable modems;

a cable modem termination system; and

a cable modem network segment that communicatively couples the cable modem termination system to the plurality of cable modems; and wherein:

the cable modem termination system is operable to provide network access to each cable modem within the plurality of cable modems, the network access being provided using a plurality of cable modem user signals, each cable modem user signal being transmitted from the cable modem termination system to at least one of the cable modems within the plurality of cable modems;

the cable modem termination system spreads each of the cable modem user signals using one corresponding orthogonal code of a plurality of orthogonal codes to generate a plurality of orthogonal code spread cable modem user signals;

the cable modem termination system sums the plurality of orthogonal code spread cable modem user signals together to generate a summed, orthogonal code spread signal;

the cable modem termination system spreads the summed, orthogonal code spread signal using a pseudo-noise code to generate a pseudo-noise code signal;

the cable modem termination system provides pseudo-noise code synchronization information to each of the plurality of cable modems;

each of the plurality of cable modems de-spreads the pseudo-noise code signal using the pseudo-noise code to generate its respective pseudo-noise de-spread cable modem user signal;

each of the plurality of cable modems de-spreads its respective pseudo-noise de-spread cable modem user signal using its respective orthogonal code; and

each orthogonal code of the plurality of orthogonal codes corresponds to one respective cable modem of the plurality of cable modems.

2. (original) The cable modem system of claim 1, wherein the network access provided to each cable modem within the plurality of cable modems comprises Internet access.

3. (original) The cable modem system of claim 1, further comprising a modulator, communicatively coupled to the cable modem termination system, that modulates the pseudo-noise code signal; and

the modulated pseudo-noise code signal being transmitted from the cable modem termination system to the at least one cable modem via the cable modem network segment.

4. (original) The cable modem system of claim 1, wherein the cable modem termination system performs transmit equalization of a communication path, between the between the cable modem termination system and the at least one cable modem, within the cable modem network segment.

5. (original) The cable modem system of claim 4, wherein the orthogonal code spreading and the pseudo-noise code spreading operate cooperatively to minimize effects of multi-path across the communication path.

6. (previously amended) A cable modem system that is operable using synchronous code division multiple access for a plurality of cable modem channels, the cable modem system comprising:

a plurality of cable modems;

a cable modem termination system; and

a cable modem network segment that communicatively couples the cable modem termination system to the plurality of cable modems; and wherein:

the cable modem termination system is operable to provide network access to each cable modem within the plurality of cable modems, the network access being provided using a plurality of cable modem user signals, each cable modem user signal

being transmitted from the cable modem termination system to at least one of the cable modems within the plurality of cable modems;

each of the plurality of cable modems spreads its respective cable modem user signal using its respective orthogonal code of a plurality of orthogonal codes to generate its respective orthogonal code spread cable modem user signal;

each of the plurality of cable modes spreads its respective orthogonal code spread cable modem user signal using a pseudo-noise code, that is common to all of the plurality of cable modems, to generate a pseudo-noise code spread cable modem user signal;

the cable modem termination system de-spreads each respective pseudo-noise code spread cable modem user signal using the pseudo-noise code to generate a respective pseudo-noise code de-spread signal;

the cable modem termination system de-spreads each respective pseudo-noise code de-spread signal using the orthogonal code employed by the respective cable modem to generate the respective orthogonal code de-spread signal; and

each orthogonal code of the plurality of orthogonal codes corresponds to one respective cable modem of the plurality of cable modems.

7. (original) The cable modem system of claim 6, wherein the network access provided to each cable modem within the plurality of cable modems comprises Internet access.

8. (original) The cable modem system of claim 6, further comprising a modulator, communicatively coupled to the at least one cable modem, that modulates the pseudo-noise code spread cable modem user signal; and

the modulated pseudo-noise code spread cable modem user signal being transmitted from the at least one cable modem to the cable modem termination system via the cable modem network segment.

9. (original) The cable modem system of claim 6, wherein the at least one cable modem performs transmit equalization of a communication path between the

between the at least one cable modem and the cable modem termination system within the cable modem network segment.

10. (original) The cable modem system of claim 9, wherein the orthogonal code spreading and the pseudo-noise code spreading operate cooperatively to minimize effects of multi-path across the communication path.

11. (currently amended) A cable modem, implemented within a cable modem system, that is operable using synchronous code division multiple access, the cable modem comprising:

a transmit block comprising an orthogonal code spreader and a pseudo-noise spreader; and

a receive block comprising a pseudo-noise de-spreader and an orthogonal code de-spreader; and wherein:

the transmit block being operable to spread a cable modem user signal using the orthogonal code spreader to generate an orthogonal code spread cable modem user signal;

the transmit block being operable to spread the orthogonal code spread cable modem user signal using the pseudo-noise code spreader to generate a pseudo-noise code spread cable modem user signal;

the receive block being operable to de-spread a received cable modem user signal using the pseudo-noise code de-spreader to generate an orthogonal code de-spread cable modem user signal;

the receive block being operable to de-spread the orthogonal code de-spread cable modem user signal using the orthogonal code de-spreader;

the orthogonal code spreader and the orthogonal code de-spreader employ a same orthogonal code unique to the cable modem; ~~and~~

each of the pseudo-noise spreader and the pseudo-noise de-spreader employs a same pseudo-noise code employed by all other cable modems within the cable modem system in accordance with spreading respective cable modem user signals and de-spreading respective received pseudo-noise code spread cable modem user signals; and

the orthogonal code employed by the orthogonal code spreader and the orthogonal code de-spreader is different than all other orthogonal codes employed by all other cable modems within the cable modem system.

12. (original) The cable modem of claim 11, wherein the transmit block further comprises a modulator and the receive block further comprises a de-modulator;

the modulator modulates the pseudo-noise code spread cable modem user signal before transmission to a cable modem termination system via a cable modem network segment; and

the de-modulator de-modulates the received cable modem user signal, the received cable modem user signal being received from the cable modem termination system via the cable modem network segment.

13. (original) The cable modem of claim 11, wherein the cable modem termination system is operable to provide network access to the cable modem.

14. (original) The cable modem of claim 13, wherein the network access comprises Internet access.

15. (original) The cable modem of claim 11, further comprising a front-end filter that is operable to perform ingress cancellation filtering.

16-30. (canceled)

31. (previously added) A cable modem system that is operable using synchronous code division multiple access for a plurality of cable modem channels, comprising:

a plurality of cable modems such that each of the plurality of cable modems includes a respective pseudo-noise de-spreader and a respective orthogonal code de-spreader; and wherein:

each of the plurality of cable modems receives a pseudo-noise code signal;

each of the plurality of cable modems employs its respective pseudo-noise de-spreader, that operates using a pseudo-noise code that is common to all of the plurality of cable modems, to de-spread the pseudo-noise code signal thereby generating its respective pseudo-noise de-spread cable modem user signal;

each of the plurality of cable modems de-spreads its respective pseudo-noise de-spread cable modem user signal using its respective orthogonal code; and

each of the plurality of orthogonal codes corresponds to one respective cable modem of the plurality of cable modems.

32. (previously added) The cable modem system of claim 31, further comprising:

a cable modem termination system coupled to each of the plurality of cable modems via a cable modem network segment; and wherein:

the cable modem termination system transmits the pseudo-noise code signal to each of the plurality of cable modems;

the cable modem termination system includes a cable modem termination system pseudo-noise control module;

each of the of the plurality of cable modems includes a respective cable modem pseudo-noise control module coupled to its respective pseudo-noise de-spreader; and

the cable modem termination system pseudo-noise control module provides a control signal to at least one respective cable modem pseudo-noise control module to enable its respective pseudo-noise de-spreader to de-spread the pseudo-noise code signal.

33. (previously added) The cable modem system of claim 31, wherein:

each of the of the plurality of cable modems includes a respective cable modem pseudo-noise control module;

each of the of the plurality of cable modems includes a respective OR gate coupled to its respective cable modem pseudo-noise control module;

each respective cable modem pseudo-noise control module provides an enable signal and the pseudo-noise code to its respective OR gate; and

when permitted by the enable signal provided to its respective OR gate, a respective pseudo-noise de-spreader of a respective cable modem is operative to de-spread the pseudo-noise code signal using the pseudo-noise code to generate its respective pseudo-noise de-spread cable modem user signal.

34. (previously added) The cable modem system of claim 33, further comprising:

a cable modem termination system coupled to each of the plurality of cable modems via a cable modem network segment; and wherein:

the cable modem termination system transmits the pseudo-noise code signal to each of the plurality of cable modems;

the cable modem termination system includes a cable modem termination system pseudo-noise control module; and

the cable modem termination system pseudo-noise control module provides the enable signal to at least one respective cable modem pseudo-noise control module.

to at least one respective cable modem pseudo-noise control module to enable its respective pseudo-noise de-spreader to de-spread the pseudo-noise code signal.

35. (previously added) The cable modem system of claim 34, wherein:

the cable modem termination system pseudo-noise control module also provides pseudo-noise synchronization information to each respective cable modem pseudo-noise control module within each respective cable modem of the plurality of cable modems.

36. (currently amended) A method, comprising:

spreading a first input signal using a first orthogonal code, of a plurality of orthogonal codes, thereby generating a first orthogonal code spread signal;

spreading a second input signal using a second orthogonal code, of the plurality of orthogonal codes, thereby generating a second orthogonal code spread signal;

summing the first orthogonal code spread signal and the second orthogonal code spread signal thereby generating a summed spread signal;

spreading the summed spread signal using a pseudo-noise code thereby generating a pseudo-noise code spread signal;

from a transmitter, transmitting the pseudo-noise code spread signal ~~from a transmitter~~ to a receiver of a plurality of receivers such that each orthogonal code of the plurality of orthogonal codes corresponds to one respective receiver of the plurality of receivers;

within the receiver, de-spreading the pseudo-noise code spread signal using the pseudo-noise code thereby generating a pseudo-noise code de-spread signal; and

de-spreading the pseudo-noise code de-spread signal using the first orthogonal code thereby generating an orthogonal code de-spread signal.

37. (previously added) The method of claim 36, further comprising:

within a first receiver of the plurality of receivers:

de-spreading the pseudo-noise code spread signal using the pseudo-noise code thereby generating the pseudo-noise code de-spread signal; and

de-spreading the pseudo-noise code de-spread signal using the first orthogonal code thereby generating the orthogonal code de-spread signal; and

within a second receiver of the plurality of receivers:

de-spreading the pseudo-noise code spread signal using the pseudo-noise code thereby generating a second pseudo-noise code de-spread signal; and

de-spreading the second pseudo-noise code de-spread signal using the second orthogonal code thereby generating a second orthogonal code de-spread signal.

38. (previously added) The method of claim 36, wherein:

the transmitter is a cable modem termination system; and

the plurality of receivers is a plurality of cable modems coupled to the cable modem termination system.

39. (previously added) The method of claim 36, further comprising:

performing ingress cancellation filtering to the pseudo-noise code spread signal before de-spreading the pseudo-noise code spread signal using the pseudo-noise code.

40. (previously added) The method of claim 36, further comprising:

providing an enable signal from the receiver to the transmitter; and

within the receiver, employing the enable signal to direct the spreading the summed spread signal using the pseudo-noise code thereby generating the pseudo-noise code spread signal.

41. (currently amended) A method, comprising:

within a transmitter, receiving an enable signal;

spreading a first input signal using a first orthogonal code, of a plurality of orthogonal codes, thereby generating a first orthogonal code spread signal;

spreading a second input signal using a second orthogonal code, of the plurality of orthogonal codes, thereby generating a second orthogonal code spread signal;

summing the first orthogonal code spread signal and the second orthogonal code spread signal thereby generating a summed spread signal;

selectively spreading the summed spread signal, based on the enable signal, using a pseudo-noise code thereby generating a pseudo-noise code spread signal; and

from the transmitter, based on the enable signal, transmitting either the pseudo-noise code spread signal or the summed spread signal ~~from a transmitter~~ to a plurality of receivers such that each orthogonal code of the plurality of orthogonal codes corresponds to one respective receiver of the plurality of receivers.

42. (previously added) The method of claim 41, further comprising:

within a first receiver of the plurality of receivers that receives the summed spread signal, de-spreading the summed spread signal using the first orthogonal code thereby generating a first orthogonal code de-spread signal; and

within a second receiver of the plurality of receivers that receives the summed spread signal, de-spreading the pseudo-noise code spread signal using the second orthogonal code thereby generating a second orthogonal code de-spread signal.

43. (previously added) The method of claim 41, further comprising:

within a first receiver of the plurality of receivers that receives the pseudo-noise code spread signal:

de-spreading the pseudo-noise code spread signal using the pseudo-noise code thereby generating a first pseudo-noise code de-spread signal; and

de-spreading the first pseudo-noise code de-spread signal using the first orthogonal code thereby generating a first orthogonal code de-spread signal; and

within a second receiver of the plurality of receivers that receives the pseudo-noise code spread signal:

de-spreading the pseudo-noise code spread signal using the pseudo-noise code thereby generating a second pseudo-noise code de-spread signal; and

de-spreading the second pseudo-noise code de-spread signal using the second orthogonal code thereby generating a second orthogonal code de-spread signal.

44. (previously added) The method of claim 41, further comprising:

the transmitter is a cable modem termination system; and

the plurality of receivers is a plurality of cable modems coupled to the cable modem termination system.

45. (previously added) The method of claim 41, further comprising:

within a receiver of the plurality of receivers that receives the pseudo-noise code spread signal, performing ingress cancellation filtering to the pseudo-noise code spread signal before de-spreading the pseudo-noise code spread signal using the pseudo-noise code.